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ORIGINAL ARTICLES.

ON THE SYMPTOMATOLOGY OF DORSAL TABES IN THE PRE-ATACTIC STAGE, AND ON THE INFLUENCE OF OPTIC ATROPHY ON THE PROGRESS OF THIS DISEASE.

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I.

I did not particularly insist on the proof of a luetic infection as an etiological factor, because a great many of the patients are women and an exact demonstration in the female is much more impracticable. Five of my male patients acknowledged a luetic infection.

In my material the proportion between the male and the female patients, of thirteen to fourteen, must appear rather astonishing. This is partially explained by the fact that Cases 22 to 27 are from the stationary clinic in which fe-

males only are treated, while Cases 1 to 21 are from the ambulatory clinic in which male and female patients are treated without distinction. Yet, even among these the proportion of thirteen to eight is still very striking and can only be explained by the fact that in France females are much more frequently tabetic than in other countries.

The duration of the disease from the time when the first subjective symptoms appeared to the date of the first examination in our cases varies between seven weeks and twenty-three years. From this it is seen how long this disease can remain in the pre-atactic stage. I want, however, even here to draw attention to the fundamental difference between the cases with optic atrophy and those without it, as regards the duration of the disease. In the former the average duration is four and a half years, in the latter nine and a half years; we shall return to this point later on.

The very first symptom which ushers in the disease consists, in the majority of cases, of lancinating pains (thirteen times) which, as is well known, may for a prolonged time remain the only symptom known to the patient. Sometimes (five times) gastric crises usher in the disease, in other cases (three times) bladder troubles, loss of vision (two times) due to optic atrophy, and interference with the functions of the ocular muscles (three times). These latter may sometimes precede the later consequences of the disease by a long time as the only symptom—as in our Case 16 in which the tabes had cast its perilous shadow fourteen years ahead, before the appearance of other symptoms. I do not think that there is a single tabetic symptom, as far as the patients can observe, which could not at some time be the incipient one.

As the lancinating pains usually usher in the disease, they are one of the regular symptoms of tabes in general; they are one of its three cardinal symptoms. Twenty-four of the twenty-seven patients suffered, or still suffer from them. There is, however, a great difference in the frequency and intensity of the painful attacks. Some have only short attacks once or twice a year, others hardly ever are free from them for a day. To three of our patients a kind fate has altogether spared these symptoms. Never in their disease, which has lasted for many years, have they had any signs of them. The

lancinating pains are almost without exception located in the legs (twenty-three times), seven times also in the arms, once only in the arms alone. They are not confined to one locality but change places almost continually. Sometimes the character of the pain is not lancinating, as for instance the neuralgia-like pains in the area of the intercostal nerves or pains in the sciatic nerve, like true sciatica. Other nerves were not affected in our cases, yet neuralgic pains are observed in almost all sensitive nerves.

Of other symptoms we had paresthesiæ of different kinds in the legs or arms thirteen times, sensations in the ulnar nerve seven times, the belt feeling seven times, gastric crises seven times, laryngeal crises six times, bladder crises three times, rectal crises twice.

I should like to dwell a little on the frequent disturbances of the bladder. There is hardly a case of advanced tabes in which the bladder, especially its motor apparatus, has retained its function. Even in the early stages of the disease such disturbances are rather constant symptoms. I have found them seventeen times and they therefore deserve a not unimportant place in the early diagnosis of this disease. Sometimes they are even the very first sign. The most frequent form (fourteen times) is incontinence, weakness of the detrusor eight times, frequently these two are found together, tenesmus or bladder crises three times. Incontinence and weakness of the detrusor are but seldom complete, but we hear that the patient repeatedly loses a few drops of urine during the night, or when he coughs, or during other exertions of the abdominal pressure, or when he waits too long before voiding his urine, also that when urinating he has to exert more pressure than formerly and that it takes more time to empty the bladder. These statements are very characteristic. I may state here that the bladder symptoms change frequently; not infrequently they disappear altogether only to reappear after a shorter or longer period, and these facts seem to me quite characteristic of tabes.

Disturbances of the intestines are more rare. We found continued constipation five times, rectal crises twice, total incontinence once. Disturbances of the sexual sphere, to

which, however, we paid no regular attention in our cases, were rare, only twice in thirteen men.

I now come to the objective symptoms and shall begin with the most important one, the reflex immobility of the pupil, as, like the lancinating pains, this is looked upon as one of the three cardinal symptoms (Struempel, Moebius, Oppenheim). In our twenty-seven cases we found total, binocular lack of reflex action on light stimulus twenty-one times, three times it was found in one eye only, and in three cases the pupils reacted upon light, but more sluggishly than in healthy individuals. In none of our patients was the pupillary reaction perfectly normal.

According to the teachings, especially in France, reflex immobility of the pupil is as a rule combined with miosis. We have, however, seen that this is incorrect in quite a number of atactics and again now among the pre-atactics. Nine times, that is in one-third of the cases, we found monocular or binocular miosis, but in just as many cases there was mydriasis; in the remaining nine cases pupillary reaction and width was normal. Inequality of the pupil (nine times) is certainly more frequent than generally admitted, whether one pupil be miotic and the other mydriatic, or whether one be mydriatic or miotic and the other normal. All sorts of combinations are found. When the two pupils are unequal in width, we find almost always that this inequality will persist during convergence and accommodation (although a slight contraction may take place) especially when the larger pupil is mydriatic. This fact proves that the difference in the width of the pupils is not due to a different reflex irritability, but to disturbances in the tonus of the sphincter or dilatator pupillæ.

I want to state here that disturbances in the function of the motor apparatus of the eye are extraordinarily frequent even in the pre-atactic stage of tabes (twenty-one times) and are seen in the form of nystagmiform spasms and of lack of co-ordination of the two eyes. The paralyses of ocular muscles with diplopia are more rare (three times). A further interesting condition is the gradually developing inability to move the eyes fully even in cases in which blindness has existed for a longer period. Here we have evidently to deal

with the forgetting of the movements, since the sensitive regulator and impulsator are wanting.

The muscles of the larynx are similarly affected. We wish to state here that all tabetics coming to the clinic and polyclinic are carefully examined laryngoscopically by Prof. Dejerine and that in two-thirds of the cases alterations are found in the motility of the vocal chords whether the patients are in the atactic or pre-atactic stage. These are paralysis or a weakness of the posterior crico-arytænoids, less frequently of a whole chord; sometimes there is simple ataxia of the vocal chords. In the cases in which laryngeal crises are observed there is almost regularly a posticus paresis present. It is a noteworthy fact that these objective disturbances almost never cause further symptoms and especially do not lead to disturbances in voice formation.

Other paresis of motor nerves are quite rare. Once we saw paresis of the median and once of the crural nerve. Both of these were only temporary and not accompanied by atrophy, and the disturbance of the direct and indirect electric irritability were only of a quantitative kind.

More interest attaches to the muscle tonus. As is known, different authors, especially Wernicke, have drawn attention to the fact that even in early stages of tabes we find a diminution or want of passive resistance to movements which is due to a diminished reflex tonus. Frenkel has studied this phenomenon very carefully and named it hypotomy. This is not the place to more carefully consider Frenkel's work.

A diminution of the resistance to passive movements, as Wernicke first described it, is very plain in every case of advanced tabes. I have found it, if not in all, yet in the great majority of our twenty-seven cases of pre-atactics in the lower as well as in the upper extremity. Neither is Frenkel's symptom, which is an abnormal excursion of the limbs on passive motion, wanting in a single case of ataxia, although the different groups of muscles may be variously affected and all sorts of combinations may be found. In the pre-atactic stage I found it only seven times. However I must state that I found sometimes an excessive hypotony in these pre-atactics. Thus one patient, when standing, could lift the stretched leg easily to her shoulders and made with much ease

the *grand écart*, that maximal spreading of the legs which we see performed by acrobats only; in short, she could give her limbs almost all of the extreme positions which Frenkel has depicted in the Nouvelle Iconographie de la Salpetrière. With this the patient showed not a sign of ataxia nor the phenomenon of Romberg. Seeing the abnormal position of the limbs, one was convinced to have to deal with a case of tabes. In his first publications Frenkel had stated that this hypotony must be looked upon as a pathognomonic symptom of tabes alone. But later on he reported a case of congenital atrophy of the cerebellum with maximal hypotony. I have, also, found hypotony frequently in cerebellar affections, but excessive degrees, as in the patient just referred to, are probably seen in tabes only.

Another motility symptom is worthy of special mention, namely, the increased direct mechanical muscular irritability which has been referred to by Sternberg in his book on tendon reflexes, and has been studied more extensively lately by Frenkel. When the thick muscles are struck with the percussion hammer, as for instance the triceps suræ, or when the muscle is taken between the fingers and pressed, the muscle answers immediately by a vivid contraction and the foot makes a plantar flexion. This increased excitability can be found in many muscles, the easiest in those of the upper extremities in the triceps brachii and the long extensors of the hand and fingers. Here often a very slight stroke suffices to produce a rapid swing of the pendant lower arm, or a rapid jumping of the hand or of single fingers. The most extensive reaction can be produced from the so-called muscle points, that is, those parts which show the highest electrical excitability. This vivid mechanical excitability may on occasion be the cause of mistakes; for when it is well pronounced a contraction of the muscle and motion of the limb will take place even when the stroke is applied to the muscle in the immediate neighborhood of its tendinous insertion, as for instance the insertion of the tendon of the triceps brachii at the olecranon. This may simulate a tendon reflex and in testing the tendon reflexes this point must be well considered and the stroke be applied to the tendinous insertion only and not to the neighboring muscles. We shall see later on

that there is even a certain antithesis between tendon reflex and muscular excitability. At present we insist upon the fact that increased mechanical muscular excitability is a frequent and easily recognized symptom (eighteen times). Its explanation is not easy. We know that the fewer stimuli are applied to a muscle, the less contracted it is, the greater is its elasticity. The tabic muscle, on account of the want of tonic stimuli from the anterior horn cells, is in maximal relaxation and therefore more elastic. If a stroke is applied to it, on account of this great elasticity, the stimulus spreads rapidly over the whole muscle. I have repeatedly observed this wave-like spreading.

We now come to the consideration of the sensibility. Disturbance of the sensibility, although heretofore little known and observed, is one of the symptoms of the earliest stages of tabes and this has again been proven to be a fact by my observations. The seat of the disturbance of sensibility is especially in the skin of the trunk. Hitzig was the first to call attention to the fact that one of the earliest symptoms of tabes is a belt like zone, situated at about the middle of the vertebral column, sometimes higher or lower, of the breadth of several ribs "in which indifferent touches are not perceived." He called this a valuable differentiating symptom. Hitzig's observation has been confirmed by Laehr, Hintze, and Marinesko. Frenkel and I have established more accurately the constancy of this symptom and its form in tabes. What holds good for tabes, in general, of course, holds equally good for the pre-atactic initial stage in particular. In the observations here considered, the disturbance of sensibility of the trunk was found in twenty-four cases. Yet, the diagnostic value of this symstom is not so high only because of its relative frequency which puts it on a level with the lancinating pains and pupillary reflex immobility, it is even increased by the fact that even in cases in which tabes had existed undoubtedly for a few months only, this disturbance was not wanting. We have then truly to deal with one of the earliest symptoms. All of the three cases in which this symptom was not found were suffering from optic atrophy, and such cases, as already hinted at, are of a special kind. Most of the observers heretofore have missed this symptom,

probably because they did not search for it; yet, we want to insist, with Hitzig, that we do not find coarse anæsthesiæ, but very fine tactile hyperæsthesiæ which are clearly demonstrated only by comparison with the normal skin, or anæsthesiæ for light touch only when coarse contact is easily felt. * * * The disturbances of sensibility on the extremities are not of the same importance as of those on the trunk, although they too are much more frequent than is generally thought. This is especially so on the upper extremities, where we found disturbances eighteen times, which like those on the trunk were tactile hypæsthesiæ or fine anæsthesiæ. They appear in the shape of a band (as described by Laehr, Marinesco, Frenkel and myself) which continues directly from the trunk zone down the inner side of the upper arm and sometimes reaches to the ulnar side of the forearm and the fifth or fourth finger. We have here a radicular type of affection and the posterior roots, the affections of which bring forth the disturbances of sensibility, are the second dorsal root for tbe inner side of the upper arm, the first dorsal root for the ulnar side of the forearm and the eighth cervical root for the fifth and fourth fingers.

Ten times we found disturbances of sensibility on the lower extremities, usually hypæsthetic bands on the outer side below the knee or the foot, or not infrequently in the area of the third to fifth sacral roots in the neighborhood of the anus, perineum, scrotum, and pelvis.

A disturbance of the deeper sensibility (joints and muscles, sensibility for passive motion of the limb) should *a priori* hardly be expected in the pre-atactic stage, although ataxia and disturbances of deeper sensibility are closely related. Such a conclusion would, however, be wrong. In twelve of our cases I observed with certainty, although they were very slight, disturbances of sensibility for passive motion. That there was no manifest ataxia present is explained by the fact that the organism has compensatory faculties which can replace the small loss of sensibility, the regulator of the movements. Nine times there were minute disturbances in the fingers and almost always in the fifth, or this and the fourth fingers, a localization which is characteristic of tabes and which may continue even into the ataxic stage

until gradually the remaining fingers and the large joints are attacked. The latter are intact in the pre-atactic stage.

Analogous disturbances, though more rarely, are also found in the lower extremities, especially localized in the toes (five times), twice also in the ankle joint, whilst knee and hip are always free.

I think it of some importance that where there are disturbances in the lower extremities, they are almost never wanting in the upper ones. * * * As is well known, Westphal's symptom, the lack of patellary reflex, is considered one of the earliest aad most constant symptoms. To be sure, cases are known all over in which this reflex was preserved and these have been termed tabes cervicalis, because the tabic symptoms are especially pronounced in the upper extremities. We do think that there is a real antagonism between lumbo-sacral and cervical tabes.

In our twenty-seven cases Westphal's symptom was found fifteen times only on both sides and once unilaterally. The patellary reflex was preserved on both sides in eleven cases, although in three of these cases it was unequal, so that only a weak reflex could de elucidated by Jendrassik's manœuvre. Once the reflex was exaggerated on both sides. I make this statement, since according to some observers (Weiss, Weir Mitchel, Lewis) an exaggeration of the reflexes is said to precede their disappearance. Normal patellary reflexes there were in seven cases. This number is surely in opposition to the hitherto accepted opinion and I must confess it astonished me. Yet, it is an undisputable fact. Of course, this does not materially detract from the value of Westphal's sign as an early symptom, yet it forces us, in cases in which it is wanting, not to exclude tabes, but to hunt for other symptoms which may secure the diagnosis.

A certain explanation for the frequent absence of Westphal's sign in my cases is afforded by the fact that a large number of my pre-atactics had optic atrophy, a complication which greatly influences the other symptoms of incipient tabes. Fourteen patients without optic atrophy had Westphal's sign ten times, thirteen with atrophy only six times.

The same statements may refer to the tendo Achillis reflex, although its examination was unfortunately omitted in

three cases. Of the twenty-four cases in which it was tested, it was absent on both sides in ten, and preserved unilaterally in five, on both sides in nine cases. This reflex almost always corresponds to that of the patellary reflex. In one case, for instance, both of these reflexes were absent on the left and normal on the right side. Yet, in some cases the patellary reflex is wanting on both sides while the tendo Achillis reflex is still good on one side, and in some other cases the knee reflex is already considerably diminished on one side while the tendo Achillis reflex is still normal on both sides. It may, therefore, be that the disappearance of the patellary precedes that of the tendo Achillis reflex; yet the reverse also may be observed.

I wish to refer once more to the antagonism between mechanical muscular irritability and the tendon reflex, because this is frequently seen also in the musculus triceps suræ and its tendon—the tendo Achillis. The reflex may be wanting, yet when the muscle is struck, a very vivid contraction of the muscle takes place and one must be guarded against mistaking it for the tendo Achillis reflex.

This antagonism is still more marked in the upper extremities, especially the triceps brachii and its tendon. In tabes this muscle reflex has thus far not been appreciated. In statistics of 400 tabetics treated at Erb's clinic, Leimbach states that the nature of this reflex had no bearing on the diagnosis. Lately Frenkel states that the disappearance of the triceps brachii reflex is a very frequent symptom of tabes. In fifteen of my twenty-seven cases this reflex was wanting bilaterally, three times unilaterally, nine times it was preserved on both sides, but of these nine cases three showed what Benedikt called the paradoxical tendon phenomenon.

Until now this has only been known concerning the patellary reflex and it consists in the fact that, instead of an extension, a flexion of the lower leg results. In his book on tendon reflexes Sternberg mentions that an analogous phenomenon is observed with the triceps reflex. When, in my three cases, the tendon of the triceps was struck, a feeble flexion of the forearm took place, This phenomenon may be explained thus: In the norm the stroke applied to the tendon, by way of reflex, stimulates several muscles to action, espec-

ially the triceps, but also the biceps and the flexors in general. When, however, the transmission of the stimulus to the triceps is in some way interfered with, yet preserved as far as the biceps is concerned, the latter may contract. The paradoxical phenomenon would thus be the first symptom of an interference with the transmission of reflexes. We had a normal triceps reflex in six cases only. Concerning this reflex in tabetics, like the patellary one, the proportion of cases with and those without optic atrophy is about the same. * * * In conclusion, I want to say a few words about the dermal reflexes (epigaster-cremaster-plantar reflex). We did not examine these in all cases, yet in the majority, and found them almost always intact, contrary to the tendon reflexes as well as to their own condition in the later stages of tabes, in which they, too, disappeared sooner or later. Their disappearance in the initial stages is certainly rare. * * * The numerous symptoms of tabes dorsalis have often been divided into two groups, in the so-called cardinal and in the less constant symptoms. Until now the cardinal symptoms have been supposed to be the lancinating pains, the reflex immobility of the pupil and Westphal's sign, at least one of these was considered necessary when joined with several of the second kind in order to insure the diagnosis. Yet, I do not think it well to make this distinction too sharp. Especially, based on their frequency the disturbances of sensibility on the trunk might well take the place of Westphal's phenomenon, more particularly since these are really seen in tabes only and in this point are even of more importance than the lancinating pains which, like the disappearance of the patellary reflex may, if more rarely, be observed in other diseases. By insisting too strongly on the above-named distinction we may sometimes be in a disagreeable position, as, for instance, in a case of tabes like the following: Never lancinating pains; both patellary reflexes normal; there is pupillary reflex immobility, but the patient has bilateral optic atrophy which would easily explain why there is no reflex to the light-stimulus.

If there is a genuine non-tabetic optic atrophy, where would our diagnosis be? Should we, therefore, hesitate to pronounce this a case of tabes? Not at all; the characteris-

tic bladder trouble the patient complained of, and the equally characteristic disturbances of sensibility in the little and ring-finger do not allow of a doubt. Therefore, I should like to insist upon this, that the other symptoms which are not commonly looked upon as cardinal ones, can not be valued according to their relative constancy, but according to their modality; thus the bladder troubles, by their changeability, the disturbances of deep sensibility, by their localization in the small and ring-finger, the disturbances of dermal sensibility, by their radicular type, etc.

There is one more important point in making the diagnosis to which I want to draw attention. In looking over the symptoms of which this affection is composed, we find that they must be attributed to parts of the nervous apparatus which lie far apart from each other. In following them from the head downward we have first bulbo-protuberantial symptoms in the reflex immobility of the pupil, the alterations in the width of the pupil, the disturbances in the ocular muscles, and the laryngeal disturbances, especially of the vocal chords and the laryngeal crises; disturbances of the cervical spinal medulla in the lancinating pains, the ulnaris sensations, etc.; further on the frequent lack of tendon reflexes in the upper arm, the disturbances of sensibility of their skin and joints; in conjunction with this we have disturbances in the upper dorsal medulla shown by the altered sensibility and the belt sensation. As disturbances in the lumbo-sacral medulla we have lancinating pains and paræsthesiæ in the legs, the lack of the patellar and the tendo Achillis reflex, disturbances in the skin and joints (toes) and hypotony. Finally, on the part of the conus terminalis we find disturbances in the bladder, rectum and sexual sphere.

Of this chain of symptoms which really form a continuation, several appear together in each case, from some or even all of the different stations just enumerated. Thus a multiple and disconnected symptom complex is formed, which more particularly seems to characterize tabes. The anatomical process which underlies tabes is going on in different, sometimes widely separated, localities of the spinal medulla, medulla oblongata and corpora quadrigemina, at the same time. This is most apparent with the disturbances of the

dermal sensibility. The beginning undoubtedly lies in the upper dorsal and cervical medulla, especially its posterior roots and the bulbo-protuberantial part. We might say that in the beginning tabes is cervical-bulbar, very soon, however, and even at the same time symptoms of the lumbo-sacral medulla and the terminal conus are added. In the vast majority of cases these lumbo-sacral symptoms gain such a prominence that tabes then is eminently lumbo-sacral. The cases in which the symptom of the upper dorso-cervical medulla are most prominent, which might be called cervical tabes, are more rare. When, however, what is even more rarely the case, the bulbo-ocular symptoms or the bladder-rectum symptoms are more prominent, we might speak of bulbar tabes or of tabes of the terminal cone. Such a distinction is, however, never sharply defined, since the symptoms are never confined to one of the four great stations. There is only one tabes, the multilocular one. This is important as to the diagnosis.

II.

In the preceding discussion of the separate symptoms we have omitted one altogether—the optic atrophy. This was done purposely because this complication exerts an important influence upon the progress of the disease and its symptomatology to which we will now give some closer attention.

I have divided the twenty-seven tabetics into two groups, those without (fourteen) and those with optic atrophy (thirteen). Thus almost half of these cases have optic atrophy, which must appear to be a very high percentage.

This may be explained by the fact that five of the cases had for years been in the stationary clinic on account of their blindness, whilst twenty-one cases were observed in the ambulatory clinic during the winter of 1898–99. Only seven, *i.e.*, one-third of these twenty-one cases have optic atrophy.

It is a widely-spread belief that the appearance of the gray atrophy of the optic nerves will more or less arrest the progress of the tabes (tabes arrêté par la cétité). This complication appears in most of the cases in which it does occur quite early, surely in the pre-atactic stage, and most of these

cases remain for the rest of their lives in this initial stage of the disease. Of the fifty eight tabetics with ataxia, which I had occasion to examine last winter there were but six with optic atrophy, while, as has been stated, about one half of these twenty-seven cases in the pre-atactic stage were blind. The average duration of the disease in these thirteen blind tabetics was nine and a half years, while among the others it was only four and a half years. Or, in other words, cases with optic atrophy remain much longer in the pre-atactic stage. When viewing the cases singly there are some which have been tabetic for 23, 9, 5 and 16 years, in which the disease has made no progress since the blindness occurred. Although there are great variations in the several cases, yet figured like the ones just given, are undoubtedly very rare in tabetics without optic atrophy.

But the arrest of the disease by the appearance of blindness can be shown in other ways. If, for instance, we compare statistically the frequency of the several symptoms in cases without and with optic atrophy, the fact is plain that almost all of the symptoms are relatively more frequent in the cases without as in those with optic atrophy. I think it is of especial importance that even as constant a symptom as the disturbances of dermal sensibility shares in this discrepancy, being present in all of the fourteen cases without optic atrophy and absent in three of the cases with optic atrophy. In the same way lancinating pains are wanting, once in the former and twice in the latter groups. With other symptoms the difference is very striking; thus, bladder troubles, twelve to five; disturbances of muscular and articular sensibility, eight to four; Westphal's sign, ten to six, etc. The pupillary reflex immobility does not take part in this, since the atrophy of the optic nerve alone diminishes or abolishes the reflex to light-stimuli. Further on, I do not think it of great importance in this question, that gastric crises and ulnaris sensations are more frequent in the pre-atactic stage with optic atrophy and this does not alter the rule that the symptomatology is poorer in the second group. If we accept the inhibiting influence of the optic atrophy on the other symptoms as a fact, the statement just made is readily understood when the disease begins with optic atro-

phy, as, for instance, in one case in which the symptoms consisted only of lancinating pains, optic atrophy and reflex immobility of the pupil with miosis. But, even in cases in which the optic atrophy came on years after the beginning of the disease when a complete development of all tabetic symptoms might have been possible, the symptoms are much less numerous. We can explain this only in this way, that the case was originally one with a tendency to optic atrophy and that its inhibiting influence existed even before sight was impaired, or we should have to assume that with the development of the optic atrophy the existing symptoms may and do disappear. There are some proofs for this opinion. Almost all of these patients state that uniformly with the loss of vision their lancinating pains, from which they had suffered terribly, disappeared. Some have been totally free after having become blind. Sometimes we see that other subjective symptoms are, *pari passu* with the process of the optic atrophy, considerably improved, as paræsthesias, crises and bladder disturbances, if not as constantly as the lancinating pains. As is well known, of the subjective symptoms, the ataxia sometimes totally disappears so that the patients return to the pre-atactic stage, although ataxia is rather rare in cases with optic atrophy.

Professor Dejerine tells me that once he saw the patellary reflex reappearing when optic atrophy began. Such a disappearance of the objective symptoms in tabes is nothing extraordinary; I have seen the same concerning the disturbances of sensibility of the skin, and Eichhorst saw the pupillary reflex return.

This fact is certain, that often when the optic nerve degenerates the disease is arrested, in a certain sense even improved. Optic atrophy and ataxia, of the whole long list of sufferings in this disease, probably the greatest evils, seem to some extent to antagonize each other, so that the patient has only the bitter choice between these, and luckily both are very rarely associated together in one patient. Of course we have no explanation of the cause of this antagonism.

MEDICAL SOCIETIES.

BRITISH MEDICAL ASSOCIATION—ANNUAL MEETING AT IPSWICH, JULY–AUGUST, 1900.

Section of Ophthalmology.

The proceedings of this Section were opened by the brief address by the President, Dr. Brailey, on "Ocular Headaches."

The first discussion was opened by Mr. Richardson Cross on the "Treatment of Chronic Glaucoma." He based his remarks upon forty-seven cases of the disease which had occurred during his private practice, and which had been very carefully tested. In his diagnosis he relied to a very great extent on the condition of the field. He discussed at length cases tested with myotics and also by operation, and showed many fields of vision, most of which demonstrated the fact that the fields improved after the tension was removed. He thought that sclerotomy was the most useful operation, and he preferred to do this operation with a keratome rather than with a Graefe's knife. He expressed himself strongly in favor of early operation.

Mr. J. Hern, who insisted that early diagnosis was absolutely essential, spoke in favor of supplementing an iridectomy by establishing a communication between the anterior chamber and the vitreous by passing a knife backwards between the top of the margin of the lens and the ciliary body.

Mr. Work Dodd, who said that his experience of operations in chronic glaucoma was by no means so good as Mr. Cross', stated that he had recently removed the upper cervical ganglion of the sympathetic on both sides, and the immediate result was contraction of the pupil and diminution of ocular tension.

Dr. Karl Grossmann stated that he had seen great benefit result from the subconjunctival injection of normal saline

solution, which he sometimes increased in strength up to 2 per cent. This should be repeated every day for a week or more. If he did a sclerotomy he preferred to do the operation with a Graefe's knife rather than with a keratome.

Mr. Bower (Gloucester) had not experienced good results from operating and he had kept patients under eserine and cocaine with practically no deterioration of vision for a very long time.

Mr. George Berry (Edinburg) advocated the use of myotics in tne early stages, but as soon as this disease was marked would do iridectomy and sclerotomy, which he performed with a keratome.

Mr. Devereux Marshall thought that the operation advocated by Dr. Hern was very risky, and asked whether a pathological examination had been made of an eye in which this operation had been performed, to which question Dr. Hern replied in the negative.

The President, in summing up, stated that he thought that if tension was relieved the disease would be cured; though when there was much atrophy of the nerve it frequently progressed, even in spite of all treatment.

Dr. Karl Grossmann then read a paper on "Quantitative Color Tests," in the course of which he said that he had found Holmgren's wool inefficient in some cases of slight color vision. As an improvement he showed a lantern he had invented for a more minute test.

Mr. Sidney Stephenson, in a paper on the "Etiology of Phlyctenular Affections of the Eye," had given particular attention to the coincidence of eczema and tuberculous affections with phlyctenulæ of the conjunctiva and cornea, and from statistics he produced he had formed a strong opinion in favor of the view that they were intimately associated.

Mr. George Foggin read a paper on "Epicanthus," in which he pointed out that undue tightness of the cheek muscles prevented the proper expansion of the nasal bones, and for the treatment of the affection proposed some mechanical methods as well as operations.

Mr. Kenneth Scott read a paper on "Dacryocystitis Resembling Tumor of the Face." The patient was a native of upper Egypt who had the condition on both sides,

but on the left it was so large that it resembled a malignant tumor. He opened and drained it, and the patient quite recovered.

In the absence of Mr. W. Watson Griffin, his paper on "Leuco-Sarcoma of the Iris" was read by the Secretary.

The discussion on the "Treatment of Lachrymal Obstruction" was opened by Mr. G. A. Berry. After remarking on the divergence of opinion as to its treatment, he expressed the view that, as a rule, cases were overtreated. He did not advocate the use of large probes, but held that most cases could be cured (when there was no bony obstruction) by slitting the upper canaliculus and passing a probe gently, not, however, repeating the operation too frequently. The cases that did best were those which had but little subsequent treatment. In very chronic cases he preferred to remove the sac, but removal of the gland was never justifiable.

Mr. Cartwright objected to slitting the canaliculus in most instances, but in advanced cases he advocated the use of gold styles.

Mr. Kenneth Scott advocated the use of fairly large probes, and when the obstruction was osseous he thought that a bur and dental engine got over this better than anything else.

Mr. St.Clair Thompson said that the nose was healthy in most of the cases he had examined.

Mr. Bower (Gloucester) thought that over-treatment was usually responsible for the bad results. He never used styles, and had for the most part given up the use of probes.

Mr. Ernest Clarke preferred to slit the canaliculus, remove the posterior wall, and insert a nail-headed gold style.

Mr. Richardson Cross advocated in severe cases slitting of both canaliculi when more efficient treatment was possible.

Mr. Sydney Stephenson thought that very large probes were sometimes useful and necessary. In newborn children pressure on the sac would sometimes effect a cure.

Remarks were also made by Mr. Ensor, Mr. Work Dodd and the President, and Mr. Berry replied.

Mr. Ernest Clarke read a paper on a case of "Cerebral

Tumor with Optic Neuritis" which ended fatally. The position of the growth was diagnosed during life, and for the relief of pressure Mr. Arbuthnot Lane trephined. The patient died shortly afterwards. Necropsy showed that the growth was a psammoglioma.

Mr. Freeland Fergus (Glasgow) gave a lantern demonstration of the fields of vision in some forms of optic nerve disease of sympathetic origin. He drew attention to the fact that possibly the advent of sympathetic ophthalmia might be inferred from observations of the field of vision.

Remarks were made by the President, Mr. Cross and Mr. Berry.

Mr. E. E. Maddox demonstrated a stereoscope in which the sight of each eye could be cut off alternately by a screen worked by electromagnets within the instrument. He also showed some new needles, and some black and green silk sutures for cases of advancement of the ocular muscles.

A paper on a "Case of Congenital Micropthalmos with Cyst," by Dr. Leslie Buchanan, was taken as read.—*British Medical Journal.*

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.,

ST. LOUIS, MO.

DOES "CROSS-EYE" AFFECT THE GENERAL HEALTH?

Ambrose L. Ranney (*New York Medical Record*, July 21, 1900), after a lengthy discussion of the subject, gives the following summary and conclusions:

1. A small percentage of subjects in whom cross-eye exists (even to a degree of extreme deformity) owe their existing disfigurement entirely to errors of refraction. Proper glasses alone will correct the disfigurement of such patients.

Extreme nervous phenomena may co-exist in this type of cases with the cross-eye, and disappear entirely when the refractive correction is properly made by glasses.

2. Extreme and constant disfigurement from cross-eye, which does not prove to be the result of refractive errors, does not as a rule entail eye-strain or tend to create reflex nervous disturbances.

3. Those who suffer only occasionally from cross-eye and at other times show no cast are peculiarly liable to reflex nervous diseases.

These subjects are constently on the border line of double vision, and are wasting nervous force incessantly in their unconscious endeavors to maintain binocular single vision. The red-glass test and the exclusion tests are of great diagnostic value with such patients.

4. Extreme cross-eye inward or outward (convergent or divergent squint) is occasionally due to the fact that both eyes are adjusted either too high or too low in the orbit (anaphoria or kataphoria). This is a clinical fact that has been unrecognized by oculists until of late. It is a most important point to decide by the aid of the tropometer prior to operative interference in all cases of lateral squint.

5. Some subjects are unconsciously able to adjust for very high degrees of "latent" squint, and actually to maintain binocular single vision most of the time. The red-glass test in such cases usually develops conquerable diplopia at once.

Severe nervous troubles are very common in patients of this type. The extreme mal-adjustment of the eye-museles is very apt to be overlooked and remain uncorrected. This is because the squint is not constant, and when present is too often attributed solely to physical debility, excessive use of the eyes, etc.

6. The "phorometer" and "tropometer" are often essential to the proper recognition of the causes of cross-eye and the particular muscles at fault in individual cases.

7. To those of the profession who have not a "phorometer" or a "tropometer" the employment of the "Maddox rod" (a little device that can be carried in the pocket and that costs but a trifling sum) and the red glass will sometimes furnish extremely valuable information regarding the causation of reflex nervous disturbances from eye-strain.

Patients who are on the border-line of squint will very often reveal their existing eye-strain at once (in the form of unconquerable diplopia) when the red-glass test alone is made.

I recall a rather amusing instance when a brother physician of this city, who had broken down completely in a nervous way and been for years under the care of an oculist of national reputation, resented as a serious affront to his vanity my assertion "that he was and always had been cross-eyed at times." I offered to prove it, and when a red glass was handed to him subsequently in my office to use as a test for his own personal satisfaction, he found that unconquerable double vision existed. He was operated upon immediately for his squint. He recovered his health at once, after his eye-strain was arrested. This sufferer had previously been wearing only a prism of two degrees for his reading, when in reality had been unconsciously struggling for his entire life to overcome his tendency to cross-eye.

8. The "exclusion test" (previously described) is of great value in cases of squint. It is often extremely difficult and

sometimes almost impossible to teach patients afflicted with cross-eye to abandon their unconscious habit of suppressing visual images. The "exclusion test" then becomes the chief reliance of the oculist in determining both the form and degree of mal-adjustment that exists, and in many instances which operative step to take first.

9. When the vertical and lateral squint co-exist, it is usually wise to correct the vertical mal-adjustment (either entirely or in part) prior to operation upon the lateral muscles.

There are enough exceptions to this rule, however, to make it wise for the oculist to study the effect of prisms upon his squint cases (prior to operative treatment) for a sufficient length of time to observe their influence. It is also advisable, as a rule, to get daily tropometer measurements for a week or two in cases of this peculiar type. Too much haste in operative procedures for the correction of combined lateral and vertical squint is apt to lead to unsatisfactory results.

I have had to do many advancements in my office, simply to correct mistakes made by others because of undue haste in undertaking the surgical correction of a complicated case of squint.

10. The old methods employed in operating for cross-eye have been so modified since the discovery of cocaine that the most extreme deformities can be rectified to-day without pain and even with no confinement to the house.

Formerly, the patient was obliged to take a general anæsthetic (chloroform or ether); the surgeon has usually to have two assistants, one to administer the anæsthetic and the other to assist in the operation; antiseptic dressings were apylied to the eye, because it had a large conjunctival wound; and the patient was prevented from following his customary business pursuits for several days at least. To-day, a few drops of cocaine solution are dropped into the eye at intervals of a minute or two until the eye has entirely lost all sensibility to pain; the opening made through the conjunctiva is so small as to make the tenotomy almost a closed wound; the tendon is "buttonholed" through this small conjunctival opening; the patient is able to aid the operator by fixing vision steadily upon some designated point that

puts the desired muscle on the stretch; the amount of tension relieved by the operation can be measured immediately (because the patient is conscious, not being under a general anæsthetic); and, finally, no surgical dressings are required after the operation, nor is it necessary to confine the patient to the house.

It certainly robs an operation of all its terrors when it is possible to correct extreme deformities by so simple and painless a method; to avoid all interruptions of business pursuits; to escape all danger of subsequent inflammation by having practically a closed wound; to be able to measure the results of the operation at the time; to enlarge the buttonhole in the tendon at one sitting as often as seems imperative; and to avoid the natural dread of taking ether or chloroform, with its possible dangers, loss of consciousness, and subsequent nausea and vomiting.

I have frequently operated upon young crossed-eyed children in my office while I talked with them about the prospective pleasures or awards offered them by their parents in case they earned them by good behavior while the operation was being performed.

11. In conclusion, I would impress upon my readers that a scientific correction of most cases of cross-eye takes more time than is usually allotted to such cases.

To pick up the tendon of an eye-muscle on a strabismus hook without any special study of the existing conditions, and to divide it completely (as has been done for years by many oculists for the relief of squint), is to-day a very crude and practically an obsolete method of procedure with those who aim at attaining orthophoria.

Simply to get an improvement in personal appearance (that must of necessity be more or less uncertain, when operative procedures are attempted on so crude a basis) is not all that should be sought for by oculists.

Any person who has never had binocular single vision (in consequence of cross-eye) is peculiarly liable to be greatly annoyed by double images whenever the eyes are brought approximately but not quite to their normal position in the orbits by operations upon the eye-muscles originally at fault. The eyes will possibly look better to the casual observer

than they did before the operations were performed; but the patient may become a sufferer from double vision and also from certain nervous disturbances never experienced while disfigured by cross-eye.

For this reason, if for no other, it is vitally important to endeavor to get as exact and perfect an adjustment as possible, and to save the patient many annoyances and possibly a nervous break-down that are apt to be entailed by imperfect operative work and the consequent eye-strain in overcoming a tendency to diplopia that never before existed to the same degree.

OPHTHALMIA NODOSA.

Bayer (*Münchener medicinische Wochenschrift*, May 22, 1900) reports a case of ophthalmia caused by the hairs of a caterpillar. The patient, while haying, was struck in the eye by a large brown caterpillar, and immediately experienced a sharp burning pain in the upper lid, which did not disappear, though it became somewhat better after ten days or so. Three months after the accident he presented himself at the clinic, when it was found that he was suffering from ophthalmia nodosa of the cornea and iris, complicated by an iritis plastica. The treatment consisted in the application of leeches and the instillation of atropine; later, in the temporary widening of the palpebral fissure, and a careful paracentesis of the anterior chamber. The eye was greatly improved, though not entirely cured, by this treatment, and on close inspection two brownish bodies were seen imbedded in the lower nasal quadrant of the cornea, which proved to be hairs from the caterpillar.

THE TREATMENT OF GLAUCOMA BY MASSAGE

Dr. Domec (*La Clinique Ophthalmologique*, October 10, 1899) calls that which he does to the eyes, in this connection, pressure massage (*massage pression*). Placing his extended fingers along the patient's temples, he rubs, with the ball of the thumb, the upper lid of each eye over the center of its cornea. Considerable pressure is made at times, providing it does not occasion pain, the amount of pressure used varying with the amount of increased tension and the effect on the

eye. On an average, the massage is continued for five minutes at a sitting. The author reports two cases:

CASE 1.—A girl, 18 years of age, examined first in October, 1896. Vision of the right eye 50 per cent. of normal, while that of the left was normal. The right pupil was slightly dilated, some excavation of the disc, and the field of vision normal. Eserine was prescribed and the patient directed to return from time to time. She was again seen in December, 1898. Vision of the right eye was 25 per cent. of the average, while that of the left was 66 per cent. The right visual field was considerably diminished, while that of the left was normal. No inflammation at any time in either eye. Eserine and pilocarpine were prescribed, to be used twice daily, and a series of ten massages were begun. Tension of both eyes decreased, and the vision of right eye increased to 50 per cent. Massage was discontinued for two months, when the vision dropped to 16 per cent. of normal. Massage was resumed and the duration of each application of it at that time increased to twenty to twenty-five minutes. Two treatments were given with an hour intervening. Before the treatments myotics had no effect on the pupils; at the end of the second treatment they had resumed their normal size. The tension was less, but still too high. Four daily treatments were given, at the end of which time the tension of the right eye was normal, and the vision had increased to 33 per cent. of normal. A little over seven months after the time when the glaucoma was at its worst, the vision was 50 per cent. of normal.

CASE 2.—A lady, 70 years of age, was first seen May 17, 1899, four days after an attack of glaucoma in the right eye. Vision = fingers at a few centimeters. The eye was red, pupil dilated, anterior chamber shallow, cornea hazy, tension very high, and no examination of the fundus possible. Massage was given and the next day there was some improvement in her vision, and three weeks after the beginning of the treatment it was 50 per cent. normal.

CLINICAL STUDY OF OCULAR SYMPTOMS FOUND IN SO-CALLED POSTERIOR SPINAL SCLEROSIS.

Charles A. Oliver (*American Journal of Medical Sciences*, July, 1909) divides tabes into two types—a gross "optic type," in which the eye symptoms appear as visual paræsthesias and contracted fields, followed later by degenerative symptoms with apparent intermissions and improvement, but ending in total blindness; some of the well-known pupillary and extra-ocular signs becoming manifest in 30 to 40 per cent. of the cases. In the "spinal type" the eye symptoms seldom come before the specialist, though in a great majority of instances they exist to a certain extent. There is an absence of growths and inflammatory signs in the ocular structures and the vision finally largely disappears.

DIONIN IN OPHTHALMIC PRACTICE.

Dionin is the hydrochloride of the mono-ethyl-ester of morphine, which appears as a fine white crystalline powder, melts at 123°–125° C., and is very soluble in water.

"Dionin as an Analgesic in Eye Diseases" was chosen by Dr. A. Darier, of Paris (*Die Ophthalmic Klinik*, 1900, No. 7), as the subject of his lecture at the March meeting of the Ophthalmological Society of Paris, in which he detailed the excellent results obtained by means of dionin in various eye diseases. The first case cited is one of hyperacute, exceedingly painful iritis of rheumatic origin. In spite of repeated atropine instillations, the pupil had failed to enlarge, the eye remaining hyperæmic and sensitive to light. A very minute quantity of dionin was then introduced into the conjunctival sac, when a severe burning sensation was experienced, and the patient complained of a sense of numbness and inability to move the eye. Two leeches were applied to the temples, and an hour later the pupil was found to be enlarged to its maximum extent, and the patient felt very much relief. Two days later the patient reported that not the slightest pain had been felt since, and the pupil remained regularly and properly expanded. Similarly good results were obtained in several other like cases. In a case of double iridochoroiditis with complete posterior synechia, however, dionin did not afford such good analgesic action. In a case

of double vascular keratitis with severe pain and extreme sensitiveness to light, the dionin caused at first an acute burning sensation and distinct chemosis, after which the pain and photophobia disappeared. Pustular keratitis in children was also treated, and, although the photophobia appeared to have been lessened, as the eyes could be opened better, yet it is difficult to render a proper decision in these cases. In a case of acute parenchymatous keratitis the improvement was very rapid, and is ascribed as being largely due to the dionin employed. One application of dionin in a case of diffuse corneal infiltration due to severe trauma, and resembling parenchymatous keratitis, sufficed to afford relief from the severe pains that had resisted other remedies and prevented sleep. A case of rheumatic episcleritis, in which sodium salicylate was ineffective, was treated with dionin with the result that, after the acute chemosis which first ensued, not only was the pain entirely relieved, but the episcleritis cured. Similarly good results in rapidly relieving pain were obtained in two cases of recurring corneal ulcers. Similar experiments were carried out in various ocular affections with other analgesics in order to determine their efficiency when compared with dionin. All those tested, however, were either far inferior to dionin, or caused such toxic symptoms (cold perspiration, vomiting, fainting spells, etc.), as to preclude their employment. With dionin, on the other hand, no symptoms of this kind were observed. Dionin may be injected under the conjunctiva when it will also cause chemosis and exert an analgesic effect. In conclusion, the author says that "dionin is, for the clinician, a powerful analgesic, by means of which the most severe pains in iritis, iridocyclitis, ulcers, keratitis, and even glaucoma may be reduced and relieved.

Dr. Wolfberg, Breslau (*Therap. Monatschr.*, Vol. XIV., p. 237), has recently employed dionin in twenty-one cases of operation for cataract, because of the excellent results previously obtained in other eye diseases with the remedy. The number, although not very large, sufficed to enable the author to fully test dionin in this class of operations. It appeared from the treatment that though dionin does not seem to possess antiseptic properties, it nevertheless imparts a

higher degree of resistance on the part of the corneal tissues towards any pathogenic microbes present than other remedies ordinarily employed. The increased flow of tears which occurs at first acts effectively in cleansing the eye; the ensuing conjunctival chemosis helps towards a better wound closure and more rapid restoration of the chamber; the swelling of the lids renders more difficult all unnecessary movement of the part, and thus helps to render the dionin of more service in treatment without bandaging. The purely mechanical effect of the dionin-ophthalmia is, moreover, of considerable value in every form of bandage. In fact, the author states that he has never before experienced such a sense of security in treating the wounds following operations for cataract as since using dionin. Colleagues who have seen cases a day or so after operations performed by the author have been convinced that the absence of all irritation, and the appearance of the wound, chamber, and pupil, left nothing to be desired; and further, that the application of dionin powder to the conjunctiva immediately after the operation was never found to be unpleasant because of sensitiveness.

Just as valuable as dionin has been found to be in all perforating corneal disturbances, just so indispensable is it also in superficial corneal wounds. The author also points out that in recurrent traumatic corneal erosions, which are so exceedingly painful, the use of dionin robs the disease of a large part of its terrors because of the analgesic action exerted by the remedy. The dionin is more particularly useful in those diseases, in which cocaine can not be used because of its deleterious effect on corneal epithelial formations. In combination with atropine, dionin is besides very useful in more rapidly inducing mydriasis, at times even in iritis. Further, dionin is useful in glaucoma, particularly in chronic inflamed forms, when combined either with eserine or pilocarpin, or even both.

HEADACHE FROM EYE-STRAIN; ITS DIAGNOSIS AND TREATMENT.

Casey A. Wood (*Medical News*, July 28, 1900) defines ocular headache as those aches and pains in and about the head that directly or indirectly result from organic disease

in, or from impaired function of, any part of the visual apparatus. He is of the opinion that with a little care and patience the general practitioner may differentiate between the headache due to eye-strain and that due to other causes. The author thinks that 40 per cent. of all headaches are caused wholly or partially by eye-strain; and, further, that 80 per cent. of frontal headaches are produced in this way. He subdivides these pains into supraorbital, deep orbital, frontooccipital and temporal. A severe headache after a shopping excursion, or a ride in a train or street car, is almost a sure sign of eye-strain.

CONTRIBUTION TO THE DIAGNOSIS, SYMPTOMATOLOGY AND STATISTICS OF CONGENITAL COLOR-BLINDNESS.

Willibald A. Nagel (*Archives of Ophthalmology*, March, 1900) gives an elaborate discussion of certain facts in regard to tests for color-blindness that are based on his own experience, as he is green-blind. He believes that the green test should be retained as the first one, and in a general test of a large number of persons should be considered the decisive one in diagnosing whether or not the color sense is normal, and that the purple test can not be neglected, since it is most convenient for distinguishing red- from green-blind. In tests individually or in small numbers, it is best to also use other ones. He notices the various methods that have been advised; those of Daae, Stilling, and Pflueger's contrast method and the new pseudo-isochromatic color charts devised by himself, consisting of rings of dots arranged with confusion colors, etc.

He also describes an apparatus for testing by means of colored glasses, that is convenient in large numbers of persons. He says that it is unjust to consider as color-blind all those who make mistakes with the worsted tests and to refuse them employment in the marine and railway service; and that Holmgren's test is not a reliable one for determining the ability of a person to recognize colored flags or lights. In his opinion tests for this purpose should deal with the color-sense of the fovea alone, or the immediately adjacent central portion of the retina. His own test for this

purpose is done with a blackened disc, 10 cm. in diameter, with a ray of perforations, 1 mm. in diameter, covered with bits of glass of various colors and illuminated by a burner behind. This is viewed from a distance of 1 to 1.5 m., and as the different colors are shown the person is required to name them.

In a series of cases in which the tests diagnosed as determined by Holmgren's method did not agree with that of his color apparatus and charts, this method of luminous points always confirmed his diagnosis.

UNUSUAL COMPLICATIONS FOLLOWING OPERATION FOR ORBITAL LIPOMA.

Würdemann (*Ophthalmic Record*, May, 1900) reports a case in which, after removal of the orbital lipoma, there was total traumatic ophthalmoplegia externa with partial atrophy of the optic nerve, due to pressure of a hæmatoma of the orbit following the operation.

IRITIS, THE RESULT OF DENTAL IRRITATION.

B. L. Milliken (*Archives of Ophthalmology*, March, 1900) reports a case of iritis apparently directly connected with decayed teeth, and relieved by their treatment. He thinks there is no question as to the causal relation of the dental disorder to the iritis.

OPTIC NEURITIS IN CHILDREN.

Leslie Buchanan (*Edinburg Medical Journal*, May, 1900) concludes that unless another distinct cause can be found, *atrophy or inflammation of both optic nerves in a child* or young person, accompanied by enlarged cervical glands, is an indication of antecedent or present tuberculous meningitis or tuberculoma of the brain.

A SUGGESTION TO AMERICAN "OPHTHALMOTRICIANS."

During the recent gathering of ophthalmologists at Paris, in connection with the International Medical Congress, an American oculist amused himself by observing the adjustment of spectacles and eyeglasses worn by these masters of the science and art of optics. One American was present

with properly fitted spectacles; of the remainder the few who wore glasses must have been served by blacksmiths or shoemakers instead of opticians. And yet these scientific men had shoes that were made for their feet, they did not wear their collars over their ears, and their hats were suited to their heads.

Everywhere in Europe the American dentist is in evidence, and we suspect those "stomatologists" without American diplomas have scant pickings. Can anyone explain why the European oculist is not only ignorant of practical refraction, but positively scornful of it? There is, probably, not a scientifically prescribed, surely not a properly adjussed, pair of glasses in all Europe. One of the greatest English physicians recently said he was convinced that headaches were never caused by eyestrain. Another said: "We have no ocular muscular troubles; how is it that you Americans have so many?" The answer was, that misfitted glasses probably gave the proper prismatic correction. We have been guilty of believing that the American "ophthalmotrician," in his desire to be a physician without a diploma was indifferent to the scientific adjustment of glasses. We are inclined to hedge and advise him to emigrate and play medical missionary to our professional continental confrères. Two excellent results would follow his expatriation.—*Philadelphia Medical Journal.*

HEREDITARY OPTIC ATROPHY.

C. S. Hawkes (*Australasian Medical Gazette*, June 30, 1900) reports two cases in which optic atrophy seemed to follow in the female line, but affected only the males. Both are followed for four generations; in the first the female had five children, all males but one, of two of whom the history is not known; the other two males became blind at the age of 30. The female child was not affected, married, and has nine children, five of whom are females and unaffected; three are unmarried, and one is married and has three male children, the oldest 19, none as yet affected. The two males became blind at the ages of 15 and 48 respectively; one, at present 28, not blind. One female married and has

two male and three female children; both the males and one female have become blind.

The second family history is even more striking in some respects. A married B, who is said to have become blind. They had three children, two males, both blind, and one girl, who married and had five children, four males, all blind, and one female, not affected, who, in turn, had two children, both males and both blind. The heredity in these cases is rather striking as showing the transmission of the defect through the female line, but involving males almost exclusively.

BOOK REVIEWS.

MANUAL OF THE DISEASES OF THE EYE. For Students and Practitioners. With 243 original illustrations, including 12 colored figures. By CHARLES H. MAY, M.D. [New York: William Wood & Co. 1900.]

Here is another claimant for recognition as a text-book for students and practitioners. While we fail to find any particular reason for another such book, we wish to state that this one is nicely gotten up, handy and a safe guide. We regret that the two hundred and forty-three illustrations are termed "original" ALT.

PAMPHLETS RECEIVED.

"Chronic Lacunar Tonsillitis," by Ch. E. Clark, M.D.

"Regeneration of the Crystalline Lens," by R. L. Randolph, M.D.

"Contribution on Sclerosis of the Cornea," by K. Tendering, M.D.

"What Not to Do in Ear, Nose and Throat Work," by M. A. Goldstein, M.D.

"Hæmorrhagic Cyst of the Ciliary Body With Spontaneous Cure," by F. Mayer, M.D.

"Use of Atropine Sulphate as a Means of Diagnosis in Certain Persistent Headaches," by O. Landmann, M.D.

"An Insurance Case in Which Ossification of the Choroid Led to the Identification of the Body," by R. L. Randolph, M.D.

"A Case of Cataracta Nigra, With Specimen; and a Case of Pulsating Exophthalmos, With Patient," by G. C. Pardee, M.D.